Nepal PEN Protocol 1 (for HP)

Prevention of Heart Attack, Strokes and Kidney Disease through Integrated Management of Diabetes and Hypertension

When Could This Protocol be applied?

- a) The protocol is for assessment and management of cardiovascular risk using hypertension, diabetes mellitus (DM) and tobacco use as entry points
- b) It could be used for routine management of hypertension and DM and for screening, targeting the following categories of people:
 - o Age >30 years (For those under 30 years of age, refer for further evaluation)
 - o Smokers
 - o Waist circumference (>90 cm in women and >100cm in men)
 - o Known hypertension
 - o Known DM
 - o History of premature CVD in first degree relatives
 - o History of DM or kidney disease in first degree relatives

Follow Instructions Given in Action 1 to Action 5, Step by Step



Action 1 - Ask About:

- Diagnosed heart disease, stroke, TIA, DM, kidney disease
- Angina, breathlessness on exertion and lying flat, numbness or weakness of limbs, loss of weight, increased thirst, polyuria, delay in wound healing, puffiness of face, frothy urine, swelling of feet, passing blood in urine etc.
- Medicines that the patient is taking
- Family history of premature heart disease or stroke or DM in first degree relatives
- Life style and behaviour
 - o Current tobacco use in last 12 month (yes/no) [if answer NO indicate he/she is not current smoker]
 - o Alcohol consumption (yes/no) [if 'Yes', frequency and amount]
 - o Occupation (sedentary or active)
 - o Engaged in more than 30 minutes of physical activity at least 5 days a week (yes/no)

First Visit

Nepal PEN Protocol 1 (for HP)

Prevention of Heart Attack, Strokes and Kidney Disease through Integrated Management of Diabetes and Hypertension

Action 2 - Assess (Physical Examination, Blood and Urine Test):

Assess in all patients

- Waist circumference (>80 cm in females and >90 cm in males)
- Measure blood pressure, look for pitting edema in feet
- Check urine protein and urine sugar
- Check blood sugar (with glucometer if lab facilities not available)
 - o RBS≥200mg/dl with symptoms (polyphagia, polyuria, polydipsia and weight loss) or FBS (≥126 mg/dl)
 - o Moreover, if on investigation, RBS≥200mg/dl but absence of the symptoms (Polyphagia, Polyuria, Polydipsia (3P) and weight loss), repeat FBS and 2hr PP before confirmation of Diabetes Mellitus
 - o If any doubt repeat FBS (≥126 mg/dl) and 2hr PP (≥200mg/dl)

In DM patients further examine:

- Feet: look for skin changes, ulcers, sensations & pulses
- Oral cavity (Oral hygiene)
- Check urine ketone

If doubt on diagnosis, refer to PHC for further evaluation

Action 3. Estimate Cardiovascular Risk:

Use WHO/ISH SCORE risk prediction chart for Nepal

- Use age, gender, smoking status, systolic blood pressure & plasma cholesterol
- If cholesterol assay cannot be done, use the cholesterol level of 5.2 mmol/l to calculate the cardiovascular risk
- Choose box of risk chart
 - o If age ≤49 years select age group box 40
 - o If age 50-59 years select age group box 50
 - o If age 60-69 years select age group box 60
 - o If age \geq 70 years select age group box 70

Action 4. Referral Criterial for All Visits:

For urgent referral (After emergency management)

- SBP \geq 180 mmHg and/or DBP \geq 110 mmHg
- HTN with symptoms (Loss of consciousness, edema, Shortness of breath, chest pain, decreased urine output, Stroke/MI)
- New Cardiac chest pain or changes in severity of angina or symptoms of transient ischemic attack
- MI, Stroke
- Uncontrolled DM with 2+ ketones in urine

For planned referral

- BP≥140/ or ≥90 mmHg in people <30 yrs (to exclude secondary hypertension)
- Raised BP≥140/90 (in DM above 130/80mmHg) while on treatment with 2 or 3 drugs
- Any proteinuria

For other planned referral follow Action 5

Nepal PEN Protocol 1 (for HP)

Prevention of Heart Attack, Strokes and Kidney Disease through Integrated Management of Diabetes and Hypertension

Action 5 - Counsel All and Treat as Shown as Below:				
↓ _{BP} Risk →	<20%	20 - 30%	>30% +	*Additional actions
	Counsel on diet, physical activity, Smoking cessation and avoiding harmful use of alcohol to all the patients under the any risk			* RBS <140 mg/dl - counseling * RBS 140 to 199 mg/dl and/or FBS 100 to 125 mg/dl counseling and follow up within 1 month
SBP≥130-139 mm Hg and/or DBP≥80-89 mm Hg	F/U 3 monthly for further evaluation	Give amlodipine 5 mg OD and visit the PHC/hospital within 1 month for further evaluation	Give amlodipine 5mg stat and continue OD and refer within two weeks	* RBS ≥200 mg/dl without symptoms repeat FBS and PPBS (counsel and treat) For Diagnosis of DM
SBP≥140-159 mm Hg and/or DBP≥90-99 mm Hg	Start amlodipine 5 mg OD and visit the PHC/hospital within 1 months for further evaluation	Give amlodipine 5mg stat and continue OD and refer within two weeks	Give amlodipine 5mg stat and continue OD and refer within one week	* RBS ≥200mg/dl with symptoms (3P, weight loss) * FBS ≥ 126 mg/dl For diagnosed DM * Start Tab Metformin 500 mg OD for 1 week
SBP≥160 mm Hg and/ or DBP≥100 mm Hg	Give amlodipine 5mg stat and continue OD and refer within two weeks	Give amlodipine 10mg stat and continue OD and refer immediately* *Add statin 10 mg OD	Give amlodipine 10mg stat and continue OD and refer immediately	* Add statin 10 mg OD for 1 week * Give advice on foot and oral hygiene Refer all diagnosed DM within 1
	_	_	+Add statin 10 mg OD (if risk ≥30%)	week for further management and evaluation

- If medicine is started, monitor response to treatment. Ask for any side effects, report immediately and refer
- Give proper instructions to patients/families for drug administration
- For uncontrolled cases follow up every month and for controlled case follow up at every three months

Important practice point:

• All patients with established DM and cardiovascular disease (coronary heart disease, myocardial infarction, transient ischaemic attacks, cerebrovascular disease or peripheral vascular disease), renal disease, if stable, should continue the treatment already prescribed and be considered as with risk >30%



First Visit

Nepal PEN Protocol 1 (for HP)

Prevention of Heart Attack, Strokes and Kidney Disease through Integrated Management of Diabetes and Hypertension

Advise:

Advice to patients and family

- Low salt diet and reduce salty foods such as pickles, long term stored pickles, salty fish/meat, avoid or reduce consumption of fried food, fast foods, processed foods, canned foods and stock cubes
- Have your blood glucose level, blood pressure and urine checked regularly (Give instruction about time/period of check up)

Give this advice for those with DM and their family

General advise

- Advise overweight patients to reduce weight by reducing their food intake
- Advise all patients to give preference to low glycaemic-index foods (eg. beans, lentils and unsweetened fruit) as the source of carbohydrates in their diet
- If you are on any DM medication that may cause your blood glucose to go down too low, carry sugar or sweets with you (Patient specific)
- Avoid walking barefoot or without socks
- Do not cut calluses or corns, and do not use chemical agents on them

Clinical advise

- In DM eyes should be screened for eye disease (diabetic retinopathy) by ophthalmologist at the time of diagnosis and every two years thereafter, or as recommended by ophthalmologist
- Maintain proper oral hygiene and consult dental surgeon if necessary
- Wash feet in lukewarm water and dry well especially between the toes
- Look at your feet every day and if you see a problem or an injury, go to your health worker

Repeat when second visit and subsequent

Ask about 1: New symptoms, adherence to advice on tobacco and alcohol use, physical activity, healthy diet, medications etc.

Action 2: Assess as shown in protocol above

Action 3: Monitor cardiovascular risk

Action 4: Counsel all and continue treatment as shown in protocol above

Action 5: Check referral criteria given above and refer to next level if necessary

Nepal PEN Protocol 2 (for HP)

Health Education and Counselling on Healthy Behaviours (Applied to ALL)

Educate and Counsel Your Patients

- 1. Take regular physical activity
- 2. Eat a "Heart Healthy" diet
- 3. Stop tobacco use and avoid harmful use of alcohol
- 4. Adherence to treatment
- 5. Attend regular medical follow-up

Educate, Counsel and Motivate to Change Unhealthy Life Style as Per Below

1. Take Regular Physical Activity

- Increase physical activity to moderate level for at least 30 minutes per day on 5 days of the week (Cardiac exercise or yoga or brisk walking, cycling as per need of patient health and age status etc)
- Counselling on body weight (As calculation of waist circumference and BMI) by reducing high calorie diet and an increase physical activity)

2. Eat a "Heart Healthy" Diet

Discourage to eat

Salt (sodium chloride)

- Restrict to less than 5 grams (1 teaspoon) per day
- Reduce salt when cooking, limit processed and fast foods (Packed food, juice, can food, etc)

Fatty food

- Limit fatty meat, dairy fat and cooking oil (less than two tablespoons per day)
- Avoid trans fat containing foods
- Replace red meat with chicken (without skin)

Encourage to eat

Fruits and vegetables

- 5 servings (400-500 grams) of locally available fruits and vegetable per day
- 1 serving is equivalent to 1 orange, apple, mango, banana or 3 tablespoons of cooked Vegetables (Can replace by other locally available fruits and vegetables)

Fish

• Eat fish at least 2-3 times per week

Nepal PEN Protocol 2 (for HP)

Health Education and Counselling on Healthy Behaviours (Applied to ALL)

3. Stop Tobacco and Avoid Harmful Use of Alcohol

- Encourage all non smokers not to start smoking and other forms of tobacco
- Strongly advise all smokers to stop smoking and support them in their efforts
- Individuals who use other forms of tobacco should be advised to quit
- Alcohol abstinence should be reinforced.
- People should be advised not to start taking alcohol for health reasons
- Advise patients not to use alcohol/tobacco when additional risks are present, such as:
 - o Driving or operating machinery things
 - o Pregnant or breast feeding mothers
 - o Taking medications that interact or are contraindicated with alcohol /tobacco
 - Having medical conditions worsened by alcohol/ smoking
 - o Having difficulties in controlling drinking

4. Adherence to Treatment

While prescribing medications:

- Tell the patient the reason for prescribing the medicine/s
- Teach the patient how to take it at home
- Explain the difference between medicines for longterm control (e.g. blood pressure/DM) and medicines for quick relief (e.g. for wheezing)

Explain about importance of medication

- The need to take the medicines regularly as advised even if there are no symptoms
- Keeping adequate supply of the medicine personally

During the medicine distribution

- Clearly show the patient the appropriate dose
- Explain how many times a day to take the medicine
- Label and package the tablets

Note: Check the patient's understanding before the patient leaves the health center

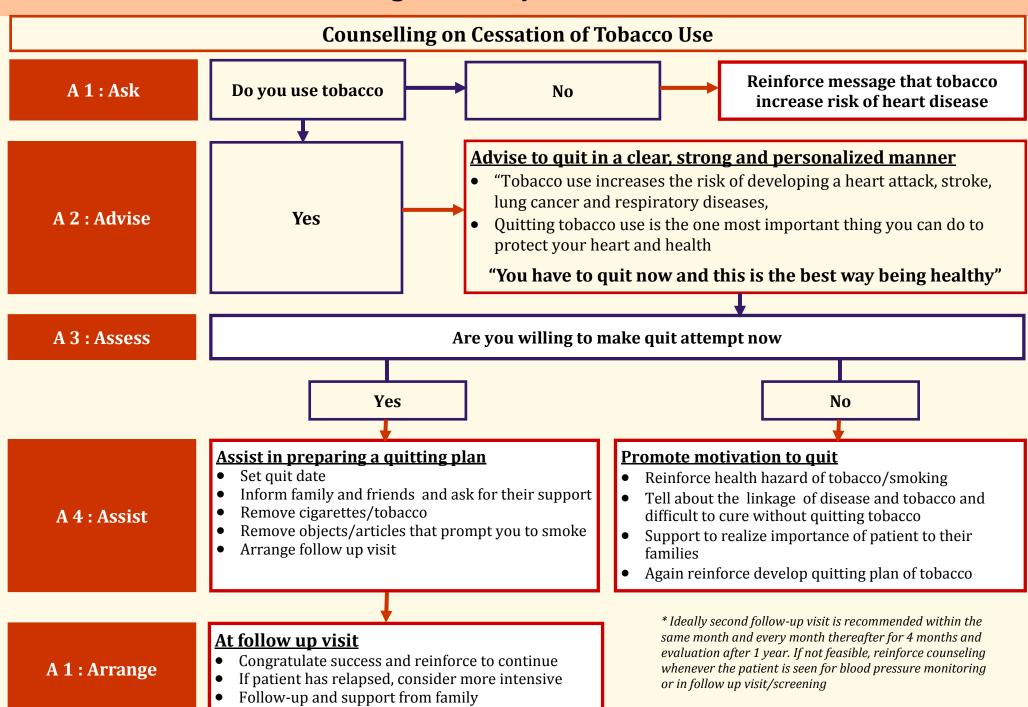
5. Attend Regular Medical Follow-up

- Clearly tell about follow up date and importance of follow up
- Ensure understanding of follow up date and visit to health facility
- In case of refer clearly tell refer/further evaluation (cause of refer, place of refer and time period of refer visit) and refilling process of drug as necessary

Request to share this information to other family members, relatives, neighbors, friends and other community members about healthy diet, healthy life style behavior and early screening and treatment

Nepal PEN Protocol 2 (for HP)

Health Education and Counselling on Healthy Behaviours



Nepal PEN Protocol 3 (for HP)

- 3.1 Management of Asthma
- 3.2 Management of Chronic Obstructive Pulmonary Disease (COPD)

Ask

Asthma and COPD can both present with cough, difficulty breathing, tight chest and/or wheezing (Necessary to differentiate whether Asthma or COPD)

ory and Sign/Symptoms

Diagnosis by Symptoms+PEFR

The following features make a diagnosis of asthma more likely:

- Previous diagnosis of asthma by physician
- Symptoms since childhood or early adulthood
- History of hay fever, eczema and/or allergies
- Family history of Asthma
- Intermittent symptoms with asymptomatic periods in between
- Symptoms worse at night or early morning
- Symptoms triggered by respiratory infection, exercise, weather changes or stress
- Symptoms respond to salbutamol

The following features make a diagnosis of COPD more likely:

- Previous diagnosis of COPD by a physician
- History of heavy smoking, i.e. >20 cigarettes per day for >15 years
- History of heavy and prolonged exposure to burning fossil fuels in an enclosed space, or high exposure to dust in an occupational setting
- Symptoms started in middle age or later (usually after age 40)
- Symptoms worsened slowly (over >8 weeks)
- Long history of daily or frequent cough and sputum production often starting before shortness of breath (8 weeks)
- Symptoms that are persistent with little day-to-day variation
- If two sputum AFB samples are negative from a DMC

Pact

Measure Peak Expiratory Flow Rate (PEFR)

- Give two puffs of salbutamol and measure again in 15 minutes
- If the PEF improves by 20%, with symptoms a diagnosis of asthma is very probable
- Smaller response with symptoms makes a diagnosis of COPD more likely

3.1. Management of Asthma

Is Asthma Well Controlled or Uncontrolled?

The following features make a diagnosis of asthma more likely:

Asthma is considered to be well controlled if the patient has:

- Daytime asthma symptoms and uses a beta agonist two or fewer times per week
- Night time asthma symptoms two or fewer times per month
- No or minimal limitation of daily activities
- No severe exacerbation (i.e. requiring oral steroids or admission to hospital) within a month
- A PEFR, if available, above 80% predicted.

If any or all of these markers are exceeded, the patient is considered to have uncontrolled asthma.

Increase or decrease treatment according to how well asthma is controlled using a stepwise approach

- **Step 1:** Inhaled salbutamol 200 mcg prn
- **Step 2:** Inhaled salbutamol prn plus low-dose inhaled corticosteroid (ICS), starting with 100ug twice daily for adults and 100ug once or twice daily for children

From step 3 onwards, refer to PHC or higher centers

- **Step 3:** Same as step 2, but give higher doses of inhaled beclometasone, 200ug or 400ug twice daily
- **Step 4:** Add low-dose oral theophylline to Step 3 treatment
- **Step 5**: Add oral prednisolone, but in the lowest dose possible to control symptoms (always less than 10mg daily)

At each step, check the patient's adherence to treatment and observe their inhaler technique correctly

Advice and treat risk factors:

- Smoking cessation; obesity reduction
- Check diagnosis, inhaler technique, adherence to medication
- Provide guidance on self-management

Review asthma control every 3-6 months and more frequently if asthma is not well controlled.

Referral for specialist:

- When asthma remains poorly controlled or severe
- When the diagnosis of asthma is uncertain

Refer

Nepal PEN Protocol 3.1 (for HP)

3.1 Management of Asthma (Exacerbation)

Assess

Freat

Advise

Assess Severity

Severe

- Inability to complete sentences in one breath.
- Respiratory rate more than 25 breaths/minute (adult).
- Heart rate ≥110 beats/minute. (adult)
- PEFR 33-50% best or predicted (If possible)
- Bilateral polyphonic wheezes on auscultation

Very Severe

- Altered conscious level, exhaustion, arrhythmia, hypotension, cyanosis, bilateral wheezes or silent chest, poor respiratory effort.
- Sp02 <92%
- Salbutamol (2.5 mg) + Ipratropium (500 mcg) nebulization via jet nebulizer using a face mask stat and repeat if not improved after 30 mins and 1 hour salbutamol in high doses by metered dose inhaler (MDI) / Dry powder inhaler (DPI) (e.g. four puffs every 20 minutes for one hour) or by nebulizer
- Oral dose theophylline and Oral prednisolone 1 mg/kg stat or IV steroid (Hydrocorticone 200 mg IV Stat) if not able to take orally
- If fever or purulent sputum or strong suspicion of infection, give stat dose of Amoxycillin + clavulinic acid and refer as soon as possible
- Provide oxygen (if available)
- Refer as soon as possible with nebulization and oxygen

Asthma - Advice to Patients and Families

Regarding prevention

- Avoid cigarette smoking and other trigger factors for asthma, if known
- Avoid dusty and smoke-filled rooms
- Avoid occupations that involve agents capable of causing occupational asthma
- Reduce dust as far as possible by using damp cloths to clean furniture, sprinkling the floor with water before sweeping, cleaning blades of fans regularly and minimizing soft toys in the sleeping area
- Eliminate insects from the house and shake and expose mattresses, blankets, etc. to sunlight when the patient is away)

Regarding treatment, ensure that the patient or parent:

- Knows what to do if their asthma deteriorates (Self Care)
- Understands the benefit from using inhalers rather than tablets, and why adding a spacer is helpful;
 - o Is taught the proper technique for use of inhalers
 - o is aware that inhaled steroids take several days or even weeks to be fully effective.

Nepal PEN Protocol 3.2 (for HP)

3.2 Management of Chronic Obstructive Pulmonary Disease (COPD)

How to Diagnosis COPD

Diagnosis of COPD is made through combining and synthesizing the information obtained from history, physical examination and spirometry

Moderate - if breathless with normal activity

Severe - if breathless at rest (Management as exacerbation and immediate refer)

(Measure PEFR and oxygen saturation, if possible.)

Suspect COPD in patients presenting with chronic exertional breathlessness, productive cough and wheezing **History** if s/he also has following features:

- Previous diagnosis of COPD by a physician;
- History of heavy smoking, i.e. >20 cigarettes per day for >15 years; history of heavy and prolonged exposure to burning fossil fuels in an enclosed space, or high exposure to dust in an occupational setting;
- Symptoms started in middle age or later (usually after age 40);

• Symptoms worsened slowly (over >8 weeks)

- Long history of daily or frequent cough and sputum production often starting before shortness of breath;
- Symptoms that are persistent with little day-to-day variation
- Exercise intolerance
- Absence of other conditions that may mimic COPD (e.g. Asthma, CHF, bronchiectasis, TB, lung cancer etc.)
- Two sputum samples negative for AFB from Daily Morning Collection

During **Physical examination**, look for the following findings which, if present, supports the diagnosis of COPD:

- Barrel shaped chest, use of accessory muscles of respiration
- On auscultation:
 - -Diminished air movement
 - -Prolonged expiration and/or wheezing
- Cyanosis, Swelling of legs/abdomen (if the disease is in advanced stage)
- 3 Measure oxygen saturation (by **Pulse Oxymeter**) to rule out hypoxemia
- **4** Given high prevalence of TB, patients with chronic cough must have a sputum test for Acid Fast Bacilli to rule out Pulmonary TB

1

Nepal PEN Protocol 3.2 (for HP)

3.2 Management of Chronic Obstructive Pulmonary Disease (COPD)

- Inhaled salbutamol 200 mcg as required, up to four times daily; or Ipratropium 20-40 mcg as required
- Add Inhaled Tiotropium 18 mcg once daily if symptoms not controlled
- Add Inhaled Salmeterol + Fluticasone 500 mcg in two divided doses if symptoms not controlled, consider adding low dose theophylline 100-300 mg/per day

Refer to PHC and higher level as and when required

3.2.1 Management of COPD (Exacerbation)

- Controlled 02 by nasal prong or face mask (2ltr/min)
- Nebulization (salbutamol nebulization solution 2.5 mg + Ipratropium nebulization 500 mcg solution 1ml + 3 ml normal saline) stat and repeat after 30 min and 1 hour
- Antibiotics (Amoxycillin + clavulinic acid)
- Oral Prednisolone 30 mg Stat / IV Steroids (Hydrocotisone 100 mg) if patient is not able to take orally
- If not controlled, refer for further management in PHCC/higher center with making communication

For All COPD Patients

Provide techniques, time and periods of exercise, benefits and importance of **CHEST REHABILATATION** to Patients

Advice to patients and families

- Ensure they understand that smoking and indoor air pollution are the major risk factors for COPD therefore, patients with COPD must stop smoking and avoid dust and tobacco smoke
- Cooking in well ventilated room by opening windows and doors
- Cooking with wood, cow dung outside the house, if possible, or build /use upgraded oven (स्धारिएको चुलो)
- Stop working in areas with occupational dust or high air pollution using a mask may help (Use safest one)
- Light aerobic exercise, Chest rehabilitation and breathing exercises (For ensuring of regularity by patients)
- Nutrition advice that likely to COPD patients
- Counsel for necessary vaccination (Provide benefits, place availability and probable cost)

Nepal PEN Protocol 4 (For HP)

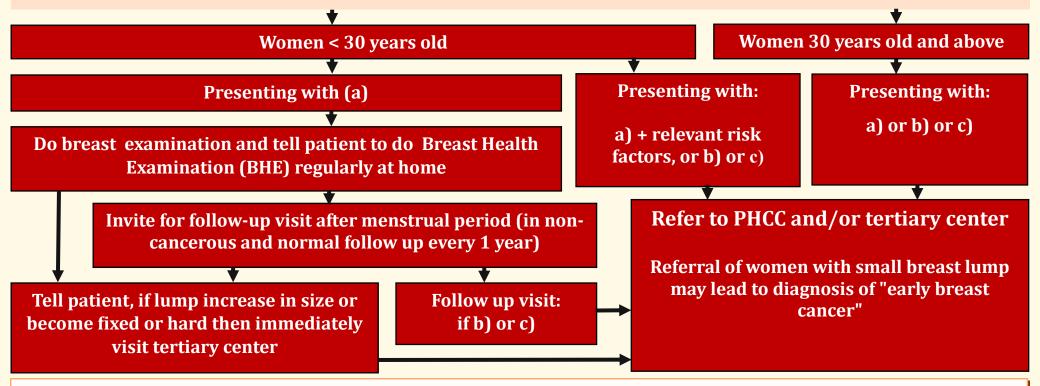
4.1 Assessment of Breast Health and Referral of Women with Suspected Breast Cancer

Women who present with the following persistent and unexplained signs and symptoms should seek consultation:

- a) Breast lump soft or mobile
- b) Breast lump that enlarges and/or is fixed and hard or any change in the shape or consistency of the breast
- c) Other breast problems (i.e. eczematous skin changes, nipple retractation, peaud'orange, ulceration, unilateral nipple discharge (particularly bloody discharge), lump in the axilla) with or without palpable lump

Assess likelihood for BREAST CANCER:

- Assess signs and symptoms (i.e. history, intensity, duration, progression)
- Identify **relevant risk factors** of breast cancer (such as age, family history, previous history of breast cancer or benign disease or ovarian cancer, chest irradiation)
- Clinical examination of both breasts, axillae and neck.



Note:

- Counsel patient for screening of their mother/sister/daughter if patient is/had suspected breast cancer
- If any confusion refer to PHCC or higher center for further evaluation

Nepal PEN Protocol 4 (For HP)

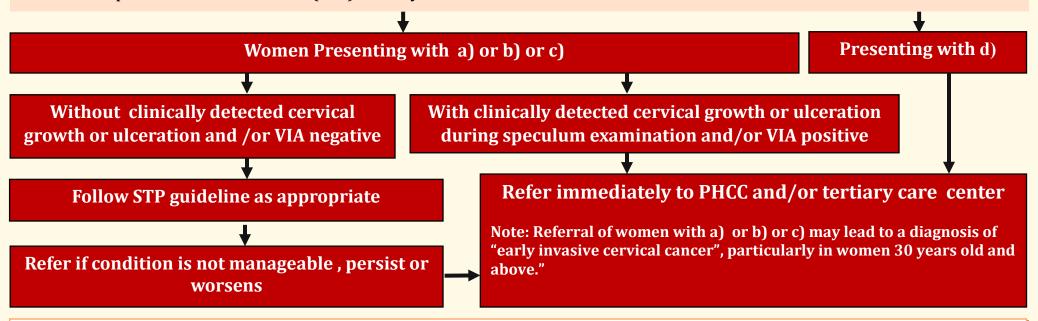
4.2 Assessment and Referral of Women with Suspected CERVICAL CANCER

Women who present with the following persistent and unexplained signs and symptoms should seek consultation:

- a) Abnormal vaginal bleeding (i.e. after coitus, between menstrual periods, post menopause)
- b) Foul-smelling discharge
- c) Pain during vaginal intercourse
- d) Any of the above/palpable abdominal mass/persistent low back or abdominal pain

Assess likelihood for CERVICAL CANCER:

- Assess signs and symptoms (i.e. history, intensity, duration, progression)
- History of LMP, menstrual cycle, IUD (To rule out pregnancy or PID)
- Identify relevant risk factors; age (30 years old and above), Infections (STI, UTI), Early menarche, Early pregnancy, Early age of first sexual contact, Multiple partner, Multiparity
- Speculum examination (If growth or erosion or bleed on touch, PV is contraindicated)
- Visual Inspection with Acetic Acid (VIA) 30-60 years



Note:

- Counsel patient for screening of their mother/sister/daughter if patient is/had suspected cervical cancer
- Counsel to patients for personal hygiene (Including reproductive health organ)
- If any confusion refer to PHCC or higher center for further evaluation